

25X1

August 12, 1970

**CONFIDENTIAL**

*Rec'd 17 Aug 70*

25X1

Attention: Bruce H.

Subject: Evaluation of Advanced Stereo Rhoimboid

Gentlemen:

The prototype Advanced Stereo Rhoimboid has been re-evaluated in accordance with our recent discussions. Our report of this evaluation is attached for your review.

As you will note the optical performance was measured on a vibration free set-up. For additional information, performance was also checked on two light tables (MIM-3 & GFL940). Vibration in the light tables appeared to degrade optical performance, however, (with considerable difficulty) the same resolution can be read as was seen with the hard mount.

In the interest of evaluating performance independent of the vibration problems in light tables, only that resolution dated taken on the hard mount is submitted for your review.

We feel that the optical performance is quite satisfactory in all of the objectives. As this data appears inconsistent with that reported in your initial evaluation of the 2X and 3X objectives, we would suggest that arrangements be made to review or verify this data and any questions concerning the optical performance of this instrument here in

25X1

Group 1  
Excluded from automatic  
downgrading and  
declassification

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Approved For Release 2004/05/05 : CIA-RDP78B05171A000600010031-9

Bruce H.

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August 12, 1970

- 2 -

We feel that the instrument is performing well with respect to the development objectives and that the instrument should be considered acceptable.

If you have any questions concerning this data please contact the writer directly.

Sincerely yours,

25X1

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Senior Marketing Administrator  
Photogrammetric and Military Systems

Group 1  
Exclude from automatic  
downgrading and  
declassification

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August 5, 1970

### Advanced Stereo Rhomboid Arm

25X1 The R&D Model Advanced Stereo Rhomboid Arm was recently returned to  to be re-evaluated. Two questions are of importance:

- 25X1
1. Does the instrument meet the intent of the specification?
  2. Has the instrument performance changed in any way since it left

The instrument has been re-evaluated by two operators under the following conditions:

- a) 15x Eyepieces
- b) 2 Pods (88BF & 280BF - Both Customer Supplied)
- c) ASR - 1x objective (both arms) Arms rotated to be parallel with "x" axis only  
2x objective (both arms) Arms rotated to be parallel with "x" axis only  
3x objective (both arms) Arms rotated to be parallel with "x" axis only
- d) Stereo Position using one eye to read resolution (axial)  
Mono Position using both eyes to read resolution (axial)
- e) Image Rotation - 12 positional readings taken

The above equipment was evaluated in various combinations on a vibration isolated bench using high intensity illuminators.

The results are as follows:

1. The instrument has not changed any of its' characteristics since it was delivered to the customer.
2. The following observations should be noted.
  - a) The arm position does not significantly affect readings - the only affect rotating the arms has, is to rotate the readings and establish a different 'normal'.
  - b) The pod does affect the readings - two pods were used:
    - using pod # 88BF the right optical train is better than the left optical train (including eyepieces, ASR and 1x 2 & 3x arms)
    - using pod # 280BF the left optical train is better than the right optical train

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Both the above pods were supplied by the customer and have not been cleaned or adjusted in any way.

- c) Vibration - it was established that the vibration level does significantly affect reading capability with 3X & 2X Arms.
- d) Image Rotation - The image rotation does affect resolution readings, therefore, 12 readings were taken for each arm (on axis only) and averaged to establish acceptability.

The resolution results are as follows:

(1) operator1                      (2) operator2                      M = Mono                      S = Stereo

1X OBJECTIVE

|                | <u>Pod</u> |     | <u>Left Side</u>                    |  | <u>Right Side</u> |
|----------------|------------|-----|-------------------------------------|--|-------------------|
| 777TF          | 88BF       |     |                                     |  | (1) 228(M) 228(S) |
| 777TF          | 88BF       | (1) | 214(M) 211(S)                       |  | (2) 223(M) 223(S) |
| 777TF          | 280BF      | (1) | 203(M) 208(S)                       |  | (2) 228(M) 195(S) |
| 777TF          | 280BF      | (2) | 222(M) 228(S)                       |  |                   |
| 778TF          | 280BF      | (2) | 228(M) 223(S)                       |  | (1) 228(M) 198(S) |
|                |            |     | 216(M) 217(S)                       |  | 226(M) 211(S)     |
| <u>AVERAGE</u> |            |     | ie. 217 lines/mm using 192 Readings |  |                   |

2X OBJECTIVE

|                |       |     |                                     |  |                   |
|----------------|-------|-----|-------------------------------------|--|-------------------|
| 775TF          | 88BF  | (1) | 439(S)                              |  | (1) 422(S)        |
| 775TF          | 88BF  | (2) | 431(M) 401(S)                       |  | (1) 461(M) 456(S) |
| 776TF          | 88BF  | (2) | 427(M) 419(S)                       |  |                   |
| 775TF          | 280BF | (2) | 435(M) 417(S)                       |  | (2) 462(M) 403(S) |
| 775TF          | 280BF |     |                                     |  | (1) 438(M) 356(S) |
| 776TF          | 280BF | (2) | 427(M) 408(S)                       |  | (2) 415(M) 411(S) |
| 776TF          | 280BF | (1) | 426(M) 410(S)                       |  |                   |
|                |       |     | 429(M) 415(S)                       |  | 453(M) 409(S)     |
| <u>AVERAGE</u> |       |     | ie. 426 lines/mm using 240 Readings |  |                   |

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3X OBJECTIVE

|                |       | <u>Left Side</u>                    |               | <u>Right Side</u> |               |
|----------------|-------|-------------------------------------|---------------|-------------------|---------------|
| 774TF          | 88TF  | (1)                                 | 500(M) 574(S) | (1)               | 609(M)        |
| 774TF          | 88BF  |                                     |               | (2)               | 615(M)        |
| 773TF          | 88BF  | (1)                                 | 505(M) 532(S) | (1)               | 574(M) 563(S) |
| 773TF          | 280BF | (2)                                 | 512(M) 474(S) | (1)               | 527(M) 484(S) |
| 774TF          | 280BF | (1)                                 | 559(M) 543(S) | (1)               | 543(M) 527(S) |
| 774TF          | 280BF | (2)                                 | 598(M) 563(S) |                   |               |
| 774TF          | 280BF | (1)                                 | 563(M) 536(S) |                   |               |
|                |       |                                     | 536(M) 537(S) |                   | 573(M) 524(S) |
| <u>AVERAGE</u> |       | ie. 543 lines/mm using 240 Readings |               |                   |               |

Based on the above readings and the overall image quality of the ASR it is our opinion that we have met the requirements.

BHW:kab



25X1

Pod 1186 TA, 3x zoom  
 ASR 772 TF, 1x obj 778 TF

Heb 7990.31

#25  
 4-10-67

25X1

eyepieces  
 Right arm  
 Hand mounted on steel base plate  
 on-axis

| Position |     | Group/Element |     |     | G.D |     |     | BH  |     |     |
|----------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|
|          |     | GP            |     |     |     |     |     |     |     |     |
|          |     | 15X           | 20X | 10S | 15X | 20X | 10S | 15X | 20X | 10S |
| 7-3      | 161 |               |     |     |     |     |     |     |     |     |
| 7-4      | 181 | 0             | 7-5 | 7-4 | 7-5 | 7-5 | 7-5 | 7-5 | 7-5 | 7-5 |
| 7-5      | 202 | 60            | 7-5 | 7-4 |     |     | 7-5 |     |     |     |
| 7-6      | 218 | 120           | 7-5 | 7-4 | 7-5 | 7-6 | 7-5 | 7-5 | 7-5 |     |
| 8-1      | 256 | 180           | 7-5 | 7-5 |     |     | 7-5 |     |     |     |
|          |     | 120           | 7-6 | 7-4 | 7-6 | 7-6 | 7-5 | 7-5 | 7-5 | 7-4 |
|          |     | 60            | 7-5 | 7-5 |     |     | 7-5 |     |     |     |
|          |     | 0             | 7-5 | 7-5 | 7-6 | 7-6 | 7-5 | 7-5 | 7-5 | 7-4 |
|          |     | 60            | 7-5 | 7-5 |     |     | 7-5 |     |     |     |
|          |     | 120           | 7-6 | 7-4 | 7-6 | 7-6 | 7-4 | 7-5 | 7-5 |     |
|          |     | 180           | 7-6 | 7-5 |     |     | 7-5 |     |     |     |
|          |     | 120           | 7-6 | 7-4 | 7-5 | 7-6 | 7-5 | 7-5 | 7-5 |     |
|          |     | 60            | 7-5 | 7-5 |     |     | 7-5 |     |     |     |
|          |     | 0             | 7-5 | 7-5 | 7-5 | 7-5 | 7-5 | 7-5 | 7-5 | 7-4 |

8-1 256 Pod alone 8-1 250 l/mm with  
 20x eyepieces right and 50x reduction target  
 left eyepieces

1x objective 477 TF  
 Left Arm ON-AXIS  
 Red 1156 TA

| Rotation | GP  |     |      | ED  |     |      |
|----------|-----|-----|------|-----|-----|------|
|          | 15X | 20X | 10.5 | 15X | 20X | 10.5 |
| 0        | 7-5 | 7-6 | 7-5  |     |     | 7-5  |
| 60       | 7-6 | 7-6 | 7-4  |     |     |      |
| 120      | 7-5 |     | 7-3  |     |     | 7-4  |
| 180      | 7-5 | 7-5 | 7-4  |     |     |      |
| 120      | 7-5 |     | 7-4  |     |     | 7-4  |
| 60       | 7-6 |     | 7-4  |     |     |      |
| 0        | 7-6 | 7-6 | 7-5  |     |     | 7-5  |
| 60       | 7-6 |     | 7-5  |     |     |      |
| 120      | 7-5 |     | 7-3  |     |     | 7-5  |
| 180      | 7-5 | 7-4 | 7-3  | 7-4 |     | 7-4  |
| 120      | 7-5 |     | 7-3  |     |     | 7-5  |
| 60       | 7-6 |     | 7-4  |     |     | 7-4  |
| 0        | 7-6 | 7-6 | 7-4  | 7-6 |     | 7-5  |

Hand mounted on steel base plate

31 Aug 78

1x obj

Pod 280 BF

misaligned to rhomboids

20x eyepieces

left side

0 7-5

120 7-5

180 7-6

120 7-5

0 7-6

120 7-5

180 7-6

120 7-5

0 7-6

GP. channel

right side

0 7-4

120 7-6

120 7-5

0 7-4

120 7-5

180 7-6

120 7-6

0 7-4

Hand mounted on steel base plate

Pod alone

8-1

20x eyepieces

right and left eyepieces

Ord 1186 TA, 3x zoom  
 ASR 772 TF, 3x obj, 773 TF  
 20x eyepieces  
 Right arm on-axis

Left Arm

|         |     | <u>GP</u> | <u>BH</u> |     |
|---------|-----|-----------|-----------|-----|
| 8-6 456 | 0   | 9-2       | 9-1       | 9-1 |
| 9-1 512 | 60  | 9-2       |           |     |
| 9-2 575 | 120 | 8-6       | 8-6       | 9-1 |
| 9-3 645 | 180 | 9-2       |           |     |
|         | 120 | 9-2       | 9-1       | 9-2 |
|         | 60  | 9-1       |           |     |
|         | 0   | 9-1       | 8-6       | 9-1 |
|         | 60  | 9-2       |           |     |
|         | 120 | 8-6       | 8-6       | 9-1 |
|         | 180 | 9-1       |           |     |
|         | 120 | 9-2       | 9-2       | 9-1 |
|         | 60  | 8-6       |           |     |
|         | 0   | 9-2       | 9-1       | 9-1 |

Vibration a problem

Pod 1186 TA, 3x 200m  
 NSR 172 TF, 2x obj 775 TF (2/8)  
 On-axis 776 TF (2/8)  
 Hand mounted on steel base plate

|         |     | 20x | 10x | 20x | 10x | SPOT<br>CHECK |
|---------|-----|-----|-----|-----|-----|---------------|
| 8-3 322 | 0   | 8-4 | 8-3 | 8-5 | 8-3 | 8-3           |
| 8-4 312 | 60  | 8-4 |     | 8-5 |     |               |
| 8-5 406 | 120 | 8-5 | 8-3 | 8-5 | 8-3 | 8-3           |
| 8-6 451 | 180 | 8-4 |     | 8-6 |     |               |
| 7-1 512 | 120 | 8-4 | 8-3 | 8-6 | 8-3 | 8-3           |
|         | 60  | 8-3 |     | 8-5 |     |               |
|         | 0   | 8-4 | 8-3 | 8-6 | 8-4 |               |
|         | 60  | 8-4 |     | 8-5 |     |               |
|         | 120 | 8-3 | 8-3 | 8-5 | 8-3 |               |
|         | 180 | 8-4 |     | 8-5 |     |               |
|         | 120 | 8-3 | 8-2 | 8-5 | 8-3 |               |
|         | 60  | 8-3 |     | 8-5 |     |               |
|         | 0   | 8-4 | 8-3 | 8-5 | 8-4 | 8-4           |

Left arm

Right arm

Pod 280 BF 2x dij

|     | <u>70X</u> | <u>105</u> |  | <u>70X</u> | <u>105</u> |
|-----|------------|------------|--|------------|------------|
| 0   | 8-5        | 8-3        |  | 8-3        | 8-3        |
| 120 | 8-5        | 8-3        |  | 8-4        | 8-2        |
| 120 | 8-5        | 8-3        |  | 8-4        | 8-3        |
| 0   | 8-4        | 8-3        |  | 8-5        | 8-3        |
| 120 | 8-5        | 8-3        |  | 8-4        | 8-2        |
| 120 | 8-5        | 8-3        |  | 8-5        | 8-2        |
| 0   | 8-5        | 8-3        |  | 8-4        | 8-3        |

Left

Right

Same as Page 5  
except for pod

Pod 280BF 3X Zoom  
 ASR 772 TF 2X obj 775 TF (left)  
 On Axis 776 TF (right)  
 On air bearing granite slab.

|     |     |     | <u>20X</u> | <u>105</u> | <u>20X</u> | <u>105</u> |
|-----|-----|-----|------------|------------|------------|------------|
| 8-3 | 323 | 0   | 8-4        | 8-4        | 8-4        | 8-3        |
| 8-4 | 362 | 60  | 8-5        | 8-3        | 8-4        | 8-3        |
| 8-5 | 406 | 120 | 8-4        | 8-3        | 8-4        | 8-3        |
| 8-6 | 456 | 180 | 8-4        | 8-3        | 8-5        | 8-3        |
| 9-1 | 512 | 120 | 8-5        | 8-2        | 8-5        | 8-3        |
|     |     | 60  | 8-5        | 8-3        | 8-4        | 8-3        |
|     |     | 0   | 8-4        | 8-3        | 8-4        | 8-3        |
|     |     | 60  | 8-4        | 8-3        | 8-4        | 8-3        |
|     |     | 120 | 8-4        | 8-3        | 8-4        | 8-3        |
|     |     | 180 | 8-4        | 8-3        | 8-5        | 8-3        |
|     |     | 120 | 8-5        | 8-3        | 8-5        | 8-3        |
|     |     | 60  | 8-4        | 8-3        | 8-4        | 8-3        |
|     |     | 0   | 8-5        | 8-3        | 8-4        | 8-3        |
|     |     |     | Left       |            | Right      |            |

Pod 280 BF 3X Zoom  
 ASR 772 TF 3X obj 774 TF (left)  
 on axis 778 TF (Right)  
 On air bearing granite slab.

|     |     |     | <u>20X</u> | <u>10S</u> | <u>20X</u> | <u>10S</u> |
|-----|-----|-----|------------|------------|------------|------------|
| 8-4 | 362 | 0   | 9-2        |            | 9-2        |            |
| 8-5 | 406 | 60  |            |            |            |            |
| 8-6 | 456 | 120 | 9-2        |            | 9-2        |            |
| 9-1 | 512 | 180 |            |            |            |            |
| 9-2 | 575 | 120 | 9-2        |            | 9-3        |            |
| 9-3 | 645 | 60  |            |            |            |            |
|     |     | 0   | 9-2        |            | 9-2        |            |
|     |     | 60  |            |            |            |            |
|     |     | 120 | 9-2        |            | 8-6        |            |
|     |     | 180 |            |            |            |            |
|     |     | 120 | 9-2        |            | 9-3        |            |
|     |     | 60  |            |            |            |            |
|     |     | 0   | 9-2        |            | 9-2        |            |
|     |     |     | Left       |            | Right      |            |

Pod 280BF 3X zoom  
 ASR 772 TF 1X obj 777TF (left)  
 on Ashs 778TF (right)  
 On air bearing granite slab

|     |         | <u>20 X</u> | <u>10 S</u> | <u>20 X</u> | <u>10 S</u> |
|-----|---------|-------------|-------------|-------------|-------------|
| 7-1 | 0       | 7-6         |             | 7-5         |             |
| 7-2 | 60      |             |             |             |             |
| 7-3 | 161 120 | 7-6         |             | 7-6         |             |
| 7-4 | 181 180 |             |             |             |             |
| 7-5 | 203 120 | 7-5         |             | 7-5         |             |
| 7-6 | 228 60  |             |             |             |             |
| 8-1 | 256 0   | 7-5         |             | 7-5         |             |
|     | 60      |             |             |             |             |
|     | 120     | 7-5         |             | 7-6         |             |
|     | 180     |             |             |             |             |
|     | 120     | 7-5         |             | 7-6         |             |
|     | 60      |             |             |             |             |
|     | 0       | 7-6         |             | 7-5         |             |
|     |         | Left        |             | Right       |             |

Pod 1186 TA 3X zoom  
 ASR 772 TP 1X obj 7777F (left)  
 on ap's 7787F (RT)  
 On air bearing granite slab

|     | <u>20X</u> | <u>10X</u> | <u>20X</u> | <u>10S</u> |
|-----|------------|------------|------------|------------|
| 0   | 7-6        |            | 7-6        |            |
| 60  |            |            |            |            |
| 120 | 7-6        |            | 7-6        |            |
| 180 |            |            |            |            |
| 120 | 7-6        |            | 7-6        |            |
| 60  |            |            |            |            |
| 0   | 7-6        |            | 7-6        |            |
| 60  |            |            |            |            |
| 120 | 7-6        |            | 7-6        |            |
| 180 |            |            |            |            |
| 120 | 7-5        |            | 7-6        |            |
| 60  |            |            |            |            |
| 0   | 7-6        |            | 7-6        |            |
|     | Left       |            | Right      |            |

Pod 1186TA 3X Zoom  
 A SR 772TF 2X obj 775TF (left)  
 on aft 776TF (right)  
 On air bearing granite slab

|             | <u>20X</u> | <u>105</u> | <u>20X</u> | <u>105</u> |
|-------------|------------|------------|------------|------------|
| 0           | 8-6        |            | 8-6        |            |
| 8-4 362 60  |            |            |            |            |
| 8-5 406 120 | 8-6        |            | 8-6        |            |
| 8-6 456 180 |            |            |            |            |
| 9-1 512 120 | 8-6        |            | 8-6        |            |
| 60          |            |            |            |            |
| 0           | 8-6        |            | 8-6        |            |
| 60          |            |            |            |            |
| 120         | 8-6        |            | 8-6        |            |
| 180         |            |            |            |            |
| 120         | 8-5        |            | 8-6        |            |
| 60          |            |            |            |            |
| 0           | 8-6        |            | 8-6        |            |
|             | Left       |            | Right      |            |

Pod 1186TA 3X Zoom  
 ASR 772TF 3X obj 774TF (left)  
 on ophs 773TF (right)  
 on air hearing granite slab  
 20x approx

|             | <u>20X</u> | <u>10S</u> | <u>20X</u> | <u>10S</u> |
|-------------|------------|------------|------------|------------|
| 0           | 9-2        |            | 9-1        |            |
| 60          |            |            |            |            |
| 8-5 406 120 | 9-2        |            | 8-6        |            |
| 8-6 456 180 |            |            |            |            |
| 9-1 512 120 | 9-2        |            | 9-2        |            |
| 9-2 575 60  |            |            |            |            |
| 9-3 645 0   | 9-2        |            | 9-2        |            |
| 60          |            |            |            |            |
| 120         | 9-2        |            | 8-6        |            |
| 180         |            |            |            |            |
| 120         | 9-2        |            | 9-3        |            |
| 60          |            |            |            |            |
| 0           | 9-2        |            | 9-2        |            |
|             | Left       |            | Right      |            |

Air Table Mount

|            |           |              |
|------------|-----------|--------------|
| Pod 280 BF | 5.0 (250) | 15X eyepiece |
|            | 4.5 (225) | 10X          |
|            | 5.6 (280) | 20X          |

|             |           |     |
|-------------|-----------|-----|
| Pod 1186 TA | 5.0 (250) | 20X |
|             | 4.5 (225) | 10X |
|             | 5.0 (250) | 15X |

|            |           |     |
|------------|-----------|-----|
| Pod 336 BF | 5.6 (280) | 15X |
|            | 5.6 (280) | 20X |
|            | 5.0 (250) | 10X |

5-bar target

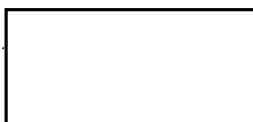
1 Aug 70  
C/

Pod 280 BF  
on a/s

3 X obj 774TF Left  
773TF Right

25X1

Mounted on



6FL-940 MCE  
S.N. 01922

20X

105

20X

105

0  
8-2 287 60  
8-3 323 120  
8-4 362 180  
8-5 406 120  
8-6 456 60  
0  
60  
120  
180  
120  
60  
0

8-5

8-3

8-4

8-4

8-3

8-4

8-4

Left

8-4

8-3

8-2

8-4

8-3

8-2

8-4

Right

Serious Vibration

Pod 280 BF

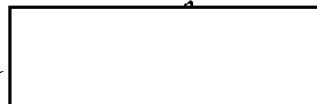
on a/s

2 x obj

775 TF (Left)

776 TF (Right)

Mounted on



G FL-940 MCE  
S.N. 01922

25X1

|             | <u>20X</u> | <u>10S</u> | <u>20X</u> | <u>10S</u> |
|-------------|------------|------------|------------|------------|
| 8-1 256 0   | 8-1        |            | 8-2        |            |
| 8-2 287 60  |            |            |            |            |
| 8-3 323 120 | 8-1        |            | 8-1        |            |
| 8-4 362 180 |            |            |            |            |
| 8-5 406 120 | 8-1        |            | 8-3        |            |
| 8-6 456 60  |            |            |            |            |
| 9-1 512 0   | 8-2        |            | 8-2        |            |
| 60          |            |            |            |            |
| 120         | 8-1        |            | 8-1        |            |
| 180         |            |            |            |            |
| 120         | 8-2        |            | 8-3        |            |
| 60          |            |            |            |            |
| 0           | 8-2        |            | 8-2        |            |
|             | Left       |            | Right      |            |

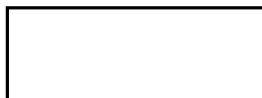
Pod 280 BF

1X Obj 777 TF (Left)  
778 TF (Right)

on axis

25X1

Mounted on



GFL-940 MCE  
S.N. 01922

|     |         | <u>20X</u> | <u>10S</u> | <u>20X</u> | <u>10S</u> |
|-----|---------|------------|------------|------------|------------|
| 7-1 | 128 0   | 7-3        |            | 7-3        |            |
| 7-2 | 144 60  |            |            |            |            |
| 7-3 | 161 120 | 7-3        |            | 7-2        |            |
| 7-4 | 181 180 |            |            |            |            |
| 7-5 | 203 120 | 7-3        |            | 7-3        |            |
| 7-6 | 228 60  |            |            |            |            |
|     | 0       | 7-4        |            | 7-4        |            |
|     | 60      |            |            |            |            |
|     | 120     | 7-2        |            | 7-3        |            |
|     | 180     |            |            |            |            |
|     | 120     | 7-3        |            | 7-3        |            |
|     | 60      |            |            |            |            |
|     | 0       | 7-3        |            | 7-3        |            |

Left

Right

| Zoom 240<br>Stereoscope | ASR<br>Objectives | Eyepieces | Mounting | Right Arm |         | Left Arm |         | Ref<br>Plane |
|-------------------------|-------------------|-----------|----------|-----------|---------|----------|---------|--------------|
|                         |                   |           |          | Majority  | Maximum | Majority | Maximum |              |
| 1186 TA                 | -                 | 20X       | Steel    | -         | -       | -        | -       | 256          |
|                         | 1X                | 10S       | Steel    | 181       | 203     | 181      | 203     |              |
|                         | 1X                | 15X       | Steel    | 203       | 228     | 203      | 228     |              |
|                         | 1X                | 20X       | Steel    | 228       | 228     | 228      | 228     |              |
|                         | 2X                | 10S       | Steel    | 323       | 362     | 323      | 323     |              |
|                         | 2X                | 20X       | Steel    | 406       | 456     | 362      | 406     |              |
|                         | 3X                | 20X       | Steel    | 575       | 575     | 512      | 575     |              |
|                         | -                 | 10S       | Granite  | -         | -       | -        | -       | 225          |
|                         | -                 | 15X       | Granite  | -         | -       | -        | -       | 250          |
|                         | -                 | 20X       | Granite  | -         | -       | -        | -       | 250          |
|                         | 1X                | 20X       | Granite  | 228       | 228     | 228      | 228     |              |
|                         | 2X                | 20X       | Granite  | 456       | 456     | 456      | 456     |              |
|                         | 3X                | 20X       | Granite  | 575       | 575     | 575      | 645     |              |
|                         | -                 | 20X       | Steel    | -         | -       | -        | -       | 256          |
| 280 BF                  | 1X                | 20X       | Steel    | 228       | 228     | 203      | 228     |              |
|                         | 2X                | 10S       | Steel    | 323       | 323     | 323      | 323     |              |
|                         | 2X                | 20X       | Steel    | 362       | 406     | 406      | 406     |              |
|                         | -                 | 10S       | Granite  | -         | -       | -        | -       | 225          |
|                         | -                 | 15X       | Granite  | -         | -       | -        | -       | 250          |
|                         | -                 | 20X       | Granite  | -         | -       | -        | -       | 250          |
|                         | -                 | -         | -        | -         | -       | -        | -       | -            |

|        |    |     |             |     |     |     |     |     |
|--------|----|-----|-------------|-----|-----|-----|-----|-----|
| 336 BF | 1X | 20X | Granite     | 203 | 228 | 203 | 228 |     |
|        | 2X | 10S | Granite     | 323 | 323 | 323 | 362 |     |
|        | 2X | 20X | Granite     | 362 | 406 | 362 | 406 |     |
|        | 3X | 20X | Granite     | 575 | 645 | 575 | 575 |     |
|        | 1X | 20X | Light table | 161 | 161 | 161 | 161 |     |
|        | 2X | 20X | Light table | 287 | 323 | 256 | 257 |     |
|        | 3X | 20X | Light table | 362 | 362 | 362 | 406 |     |
|        | —  | 10S | Granite     | —   | —   | —   | —   | 250 |
|        | —  | 15X | Granite     | —   | —   | —   | —   | 280 |
|        | —  | 20X | Granite     | —   | —   | —   | —   | 280 |
|        |    |     |             |     |     |     |     |     |
|        |    |     |             |     |     |     |     |     |

Pod 280 BF was aligned to the ASR during the contract and was the pod used during the evaluation of the ASR.

On 31 August 1970 it was discovered that [ ] had aligned the ASR to the 1186 TA pod because [ ] believed it to be better than pod 280 BF. 25X1

Pod 336 BF was hand-carried to [ ] because it was known to be a good pod. 25X1  
Because of lack of time, this pod was used very sparingly.

*Mounting Notes:*

*Steel - A massive steel surface plate, supported on an angle iron base, standing directly on the floor. The optics were hard mounted on the surface plate.*

*Granite - A massive granite base of an optical bench. The base was isolated from the floor by air bearings. The optics were hard mounted on the granite base.*

*Light Table - A  GFL-940 MCE, S/N 01922, light table standing directly on the floor. The optics were mounted in the ring mount of the table.*

25X1